Amendments to the Claims:

The following listing of claims replaces all prior versions and listings of claims, in the application.

Listing of Claims

1. (Currently Amended) A fluorescence imaging system comprising:

a diode laser light source for producing excitation light that induces visible fluorescence in tissue and a second light source for producing a reference light;

an optical combiner that combines said excitation light and said reference light onto a common optical path, said combined light being coupled into an optical guide that delivers the combined light to the tissue;

~~an image sensor~~ a single image detector that detects a fluorescence image and a reference image of the tissue; and

a data processor that processes the fluorescence image and said reference image to produce a processed output image of the tissue.

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2. (Currently Amended) The system of Claim 1 wherein the processed output image comprises a visible light image and a color overlay indicative of a predetermined level of fluorescence intensity ~~light source is an arc lamp~~.

3. (Currently Amended) The system of Claim 2 wherein the ~~arc lamp current source is a pulsed source~~ single image detector is a charge coupled device detector.

4. (Currently Amended) The system of Claim 1 wherein the optical guide is a ~~removable~~ fiberoptic bundle extending through a ~~biopsy~~ channel of an endoscope.

5. (Currently Amended) The method of Claim 1 wherein the image sensor is located at a distal end of [[a]] an endoscope.

6. (Currently Amended) The system of Claim 1 wherein the excitation light and the reference light are emitted sequentially such that a monochromatic image ~~sensors~~

sensor detects a ~~fluorescent~~ fluorescence image during a first time period and detects a reflected image during a second time period.

7. (Original) The system of Claim 1 wherein the excitation light and the reference light are emitted simultaneously such that respective images are detected by a color-sensitive image sensor, a blue channel detecting the fluorescence image and a red channel detecting the reference image.

8. (Original) The system of Claim 1 wherein the excitation light is in the range of 300 to 420 nm.

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9. (Currently Amended) The system of Claim 1 wherein the second light source further comprises a reference light source having a wavelength in a red or infrared range.

10. (Original) The system of Claim 1 wherein the optical guide comprises an optical fiber with a distally mounted lens.

11. (Currently Amended) The system of Claim 1 wherein the excitation light has an angular ~~orientation~~ distribution that is the same as an angular ~~orientation~~ distribution as the reference light.

12. (Currently Amended) A method for imaging tissue fluorescence comprising:

providing excitation light with a first wavelength;

providing a reference light having a second wavelength;

~~combining said excitation light and said reference light onto a common optical path;~~

detecting a fluorescence image of the tissue due to ~~the~~ said excitation light and a reference image of the tissue due to reflected reference light; and

processing said fluorescence image together with said reference image to produce an output image of the tissue comprising the steps of:

correcting the fluorescence image and the reference image for video gamma factor;

normalizing the intensity level of the fluorescence image and the reference image;

generating a ratio image of the fluorescence image and a corrected reference image; and

determining if the ratio image falls below a predetermined threshold value indicative of the presence of a region of dysplasia.

13. (Original) The method of Claim 12 further comprising providing an arc lamp light source.

14. (Currently Amended) The method of Claim 13 further comprising pulsing ~~the arc lamp~~ a current source of the arc lamp.

15. (Original) The method of Claim 12 further comprising sequentially directing the excitation light and reference light onto the optical path and detecting the images with a monochromatic image sensor.

16. (Original) The method of Claim 12 further comprising simultaneously emitting the excitation light;

and detecting images with color-sensitive image sensor, the sensor having a blue channel detecting an autofluorescence image and a red channel detecting the reference image.

17. (Original) The method of Claim 12 further comprising coupling the excitation light and the reference light to an optical fiber such that a variation in a normalized intensity of the reference light and a normalized intensity of the excitation light is less than 20% at any point in a wavefront along the optical path between a combiner that combines the excitation light and the reference light and a tissue surface.

18. (Currently Amended) A method for imaging tissue fluorescence comprising:

providing excitation light having a wavelength in a range of 300 nm to 420 nm;

providing a reference light having a wavelength in a visible red range;

combining said excitation light and said reference light onto a common optical path ~~such that an intensity of the excitation light varies less than 20% relative to a normalized intensity of the reference light at any point along the optical path~~;

detecting a fluorescence image of the tissue due to the said excitation light and a reference image of the tissue due to reflected reference light with ~~an~~ a color imaging sensor at a distal end of an endoscopic probe; and

processing said fluorescence image and said reference image to produce an output image of the tissue, wherein the reference image is used to normalize the fluorescence image to quantify local reductions in fluorescence intensity.

19. (Currently Amended) The method of Claim 18 further comprising determining a ratio of the fluorescence image and the reference image to provide [[a]] the processed image.

20. (Original) The method of Claim 18 further comprising adjusting the relative intensity or angular distribution of the reference light relative to the excitation light.

21. (New) The system of Claim 1 wherein the single image detector further comprises a pixellated integrated circuit device.

22. (New) The system of Claim 1 wherein the single image detector further comprises a CMOS imaging device.

23. (New) The system of Claim 1 wherein the diode laser light source comprises gallium nitride laser diodes.

24. (New) The system of Claim 23 wherein the gallium nitride laser diodes operate at wavelengths in the range of 380 nm to 420 nm.

25. (New) The system of Claim 1 wherein the second light source is an arc lamp.

26. (New) The system of Claim 1 wherein the second light source is a mercury arc lamp.

27. (New) The method of Claim 12 further comprising providing a diode laser light source for providing excitation light.

28. (New) The method of Claim 12 wherein the step of normalizing the reference image comprises a histogram-based normalization.

29. (New) The method of Claim 18 wherein the step of processing comprises the steps of:

correcting the fluorescence image and the reference image for video gamma factor;

normalizing the intensity level of the fluorescence image and the reference image;

generating a ratio image of the fluorescence image and a corrected reference image; and

determining if the ratio image falls below a predetermined threshold value indicative of the presence of a region of dysplasia.

30. (New) The method of Claim 18 wherein the output image further comprises a color overlay indicative of a predetermined level of fluorescence intensity.

31. (New) The method of Claim 18 further comprising providing a diode laser light source for providing excitation light.

32. (New) The method of Claim 31 wherein the diode laser light source comprises a solid state gallium nitride laser diode.

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33. (New) The method of Claim 32 wherein the gallium nitride laser diode operates at wavelengths in the range of 380 nm to 420 nm.

34. (New) The method of Claim 18 further comprising providing an arc lamp for providing a reference light.

35. (New) The method of Claim 34 wherein the arc lamp is a mercury arc lamp.